ENERGY STAR® Program Requirements for Residential Light Fixtures

Partner Commitments

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified residential light fixtures. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on residential light fixtures and specifying the testing criteria for Residential Light Fixtures. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;

- comply with current ENERGY STAR Logo Use Guidelines, describing how the ENERGY STAR labels and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;

- qualify at least one ENERGY STAR labeled residential light fixture model within one year of activating the residential light fixtures portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;

- provide clear and consistent labeling of ENERGY STAR qualified residential light fixtures. The ENERGY STAR label must be clearly displayed on the product packaging, in product literature (i.e., user manuals, spec sheets, etc.), and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed;

- provide ENERGY STAR sales training to all sales staff. This training shall include: a) identification of ENERGY STAR labeled products within the store, b) tips for selling ENERGY STAR labeled products, and c) tips for answering questions about ENERGY STAR;

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying residential light fixture models. Once the Partner submits its first list of ENERGY STAR labeled residential light fixture models, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

- for each qualifying residential light fixture model, provide to EPA test data to certify that the fixture has met the required safety acceptance and performance tests. EPA will only add models to its Qualifying Product List after reviewing and approving the product test results;

- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified residential light fixtures shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third

party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for Residential Light Fixtures within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;

- purchase ENERGY STAR labeled products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR labeled product information to employees for use when purchasing products for their homes;

- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;

- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR labeled product models;

- feature the ENERGY STAR label(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;

- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR labeled products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;

- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.

ENERGY STAR® Program Requirements for Residential Light Fixtures

Eligibility Criteria

Below is the product specification (Version 3.1) for ENERGY STAR qualified residential light fixtures. A product must meet all of the identified criteria if it is to be qualified as ENERGY STAR by its manufacturer.

The intent of ENERGY STAR for Residential Light Fixtures is to move consumers from traditional incandescent fixtures to fixtures that use high-quality fluorescent or other energy-efficient technologies, including outdoor motion-sensors and daylight-sensors.

Section 1 defines commonly used vocabulary in the specification; Section 2 describes qualifying products; Section 3 provides the energy-efficiency specifications for qualifying products and includes Tables 1, 2A and 2B for indoor and outdoor fixtures; Section 4 explains the general test and documentation protocol and includes Table 3, which re-states the performance characteristics as described in Table 1, defines acceptable methods of measurement reference standards, and lists required documentation; Section 5 explains the effective date of this specification; and Section 6 discusses future specification revisions.

1) Definitions: Below is a brief description of related terms as relevant to ENERGY STAR for Residential Light Fixtures.

   A. Light Fixture (Luminaire): A complete lighting unit consisting of a lamp or lamps, and ballasting (when applicable) together with the parts designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply.

   B. Lamp: A generic term for a manufactured source of light. By extension, the term is also used to denote sources that radiate in regions of the spectrum adjacent to the visible.

   C. Compact Fluorescent Lamp: Multitube or multibend single-ended pin-based lamps.

   D. Linear Fluorescent Lamp: Straight or U-bent double-ended lamps.

   E. Ballast: A device used with an electric-discharge lamp to obtain the necessary circuit conditions (voltage, current and waveform) for starting and operating.

   F. Input Power: The actual total power used by all the lamps and ballast(s) of the light fixture when operating, measured in watts (W).

   G. Lamp Current Crest Factor: Ratio of peak current to the root mean square (RMS) lamp current.

   H. Ballast Frequency: The frequency at which the ballast operates the lamp, measured in Hertz (Hz) or kilohertz (kHz).

   I. Color Rendering: The effect that the spectral characteristics of the light emitted by the lamp has on the color appearance of the objects illuminated by the lamp. Color Rendering Index is measured on a scale of zero to 100, and is defined in terms of a comparison of the spectral tri-stimulus values of the objects under test illumination and a reference or standard illumination according to the recommendations of CIE Publication No. 13.3.

   J. Correlated Color Temperature (CCT): The actual color of the lamp is called the color temperature and is defined in terms of the spectral tri-stimulus values (color coordinates) according to the recommendations of IESNA LM-16. For color coordinates near the Black Body loci, the correlated color temperature, measured in Kelvin (K), is used.

   K. NFPA: The National Fire Protection Association (United States) develops the National Electrical Code (NEC).

L. NVLAP: National Voluntary Laboratory Accreditation Program.

M. MRA: Mutual Recognition Arrangement.

N. ILAC: International Laboratory Accreditation Cooperation (NVLAP MRA Signatory).

O. APLAC: Asia Pacific Laboratory Accreditation Cooperation (NVLAP MRA Signatory).

P. NACLA: National Cooperation for Laboratory Accreditation (NVLAP MRA Signatory).

Q. OSHA: Occupational Safety & Health Administration.

R. NRTL: Nationally Recognized Testing Laboratory Program, which is a part of OSHA's Directorate of Technical Support.

S. ANSI: American National Standards Institute.

T. IESNA: Illuminating Engineering Society of North America.

U. CIE: Commission Internationale de l'Eclairage.

V. UL: Underwriter Laboratories.

W. NEMA: National Electrical Manufacturers Association.

X. ALA: American Lighting Association.

2) Qualifying Products: The ENERGY STAR Residential Light Fixture specification covers the requirements for indoor and outdoor light fixtures intended primarily for residential type applications. For the purposes of ENERGY STAR, residential applications include single-family and multi-family dwellings (such as houses and apartments), dormitories, public or military housing, assisted-living facilities, motels and hotels, and some light commercial applications.

3) Energy-Efficiency Specifications for Qualifying Products: Only those products listed in Section 2 that meet the criteria below may qualify as ENERGY STAR. Specifications for qualifying **indoor fixtures** can be found in Table 1. Specifications for qualifying **outdoor fixtures** can be found in either Table 2A (Light Source) or Table 2B (Operating Time).

Table 1 - Indoor Fixtures

Performance Characteristic	**ENERGY STAR Specification**
Efficiency	
System Efficacy[1], per lamp ballast combination	≥ 46 lumens per watt for all fixture types below 30 listed lamp watts. ≥ 60 lumens per watt for all fixture types that are ≤ 24 inches and ≥ 30 listed lamp watts.
System Efficacy (cont.)	≥ 70 lumens per watt for all fixture types that are > 24 inches and > 30 listed lamp watts.

[1] Efficacy shall be determined by the following equation:

$$\text{Efficacy [Lumens per Watt]} = \frac{\text{Measured Lamp Lumens [Lumens]}}{\text{Measured Input Power [watts]}}$$

Lamp Lumens: Lamp lumens must be measured using the lamp and ballast that are shipped with the fixture.

Input Power: Input power must be measured with the lamp and ballast that are shipped with the fixture.

For fixtures shipped without lamps, efficacy shall be determined by testing at least one of the lamp types listed on the fixture package.

Lamp Start Time	The time needed after switching on the lamp to start continuously and remain lighted must be an average of one second or less. For manufacturers using magnetic ballasts and lamps with integrated electronic starting chips, lamps must be included with fixtures when shipped from the factory.
Lamp Life	For fixtures that are shipped with a lamp, the average rated life of the lamp must be ≥ 10,000 hours. For fixtures that are not shipped with lamps, a list of lamp types must be provided that would result in the fixture complying with the specification. This list must be clearly visible to the consumer on the fixture packaging. Manufacturers are not required to provide specific lamp manufacturer names and model numbers on the packaging. Rather, generic lamp listings, such as the NEMA or ANSI generic descriptions, will suffice.
Color Rendering Index	≥ 80 for compact fluorescent lamps. ≥ 75 for linear lamps.
Correlated Color Temperature	For fixtures that are shipped with a lamp, and do not have a *rated* color temperature of 2700K or 3000K (*actual measured* CCT of 2700 to 3000K ± 200K), the packaging should clearly describe the color of the product (cool or warm) and state its intended use. For fixtures that do not ship with a lamp, a list of lamp types must be provided that would result in the fixture complying with the specification. This list must be clearly visible to the consumer on the fixture packaging. Manufacturers are not required to provide specific lamp manufacturer names and model numbers on the packaging. Rather, generic lamp listings, such as the NEMA or ANSI generic descriptions, will suffice.
Noise	Class A sound rating for electromagnetic and electronic ballasts. Not to exceed a measured level of 24 dBA when measured in a room with ambient noise no greater than 20 dBA.
Fixture Warranty	A written warranty must be included with the product, which covers repair or replacement of defective parts of the fixture housing or electronics (excluding the lamp) for two years from the date of purchase.
Dimming	Torchiere style portable fixtures shall be dimmable from 100% to 30% or less of maximum light output, or be switchable to three levels of brightness, not including the off position.
Durability	No documentation is needed at this time. Discussion and research are underway with results and decisions still to be determined. The intent is to develop a technical specification for durability testing of ENERGY STAR qualified residential light fixtures. This discussion has no bearing on the implementation of this specification.

Safety[2]	Fixtures must be tested and listed by an OSHA NRTL as acceptable for compliance with NFPA 70, National Electrical Code (NEC).
Portable Fixtures	The cover page of a safety test report or a general coverage statement must be provided to demonstrate compliance with ANSI/UL 153.
Hardwired Fixtures	The cover page of a safety test report or a general coverage statement must be provided to demonstrate compliance with UL 1598.
Ballasts and "Non-Edison base Fluorescent Adapters"	The cover page of a safety test report or a general coverage statement must be provided to demonstrate compliance with ANSI/UL 935 or UL 1993, as appropriate.
Performance Characteristics for Electronic Fluorescent Ballasts	
General	Per ANSI C82.11 Section 5 except paragraph 5.3.1.
Power Factor	$\geq$ 0.5
Lamp Current Crest Factor	$\leq$ 1.7
Maximum Case Temperature	$\leq$ 90° C. or not to exceed ballast manufacturer requirements, whichever is lower.
Electromagnetic and Radio Frequency Interference	Ballast must be FCC rated for consumer use.
Ballast Frequency	20 to 33 kHz or $\geq$ 40 kHz
Transient Protection	Per ANSI C82.11b, paragraph 5.10.1 (100hkz Ring Wave, 2.5kV, both common mode and differential mode, 7 strikes)
End of Life Protection	Required for all T5 and smaller lamps. Manufacturer must submit laboratory data or an engineering description outlining the scheme that is used to achieve the end of life function within the ballast. [Tests for these protection circuits are under development by ANSI subcommittee C82-1 for inclusion in C82.11. ENERGY STAR may require further documentation when standard is adopted.]

[2] When private labeling products, a letter from the original equipment manufacturer (OEM) that acknowledges the private labeling of its products must be provided. The letter must include the name of the private labeling company, the model numbers of the products being submitted for ENERGY STAR as listed on the QPI form, and the OEM's OSHA NRTL file number for the appropriate category control number (e.g., "fluorescent surface mounted luminaries, portable lamps, etc.").

Performance Characteristics for Magnetic Fluorescent Ballasts General	Per ANSI C82.1 Section 5 except paragraph 5.3.1 and 5.3.2.1.
Lamp Current Crest Factor	≤ 1.7
Maximum Case Temperature	≤ 90° C. or not to exceed ballast manufacturer requirements, whichever is lower.
Electromagnetic and Radio Frequency Interference	Not Applicable
Ballast Frequency	60 Hz
Transient Protection	Not Applicable
End of Life Protection	Not Applicable

Table 2A - Outdoor Fixtures: Compliance Through Efficient Light Source	
Performance Characteristic	**ENERGY STAR Specification**
Maximum Input Power	150 watts
System Efficacy	≥ 40 Lumens Per Watt, for fixtures up to 70 listed lamp watts ≥ 50 Lumens Per Watt, for fixtures from 70 to 150 listed lamp watts
Lamp Socket Compatibility	Lamp holder will operate only lamps that perform to the input power range of the fixture.
Controls Time of Day	Fixture must contain an integrated daylight threshold sensor that automatically prevents operation during daylight hours. The sensor must automatically reset to sensing mode within 24 hours of a manual override or testing operation. If the daylight threshold sensor can be adjusted such that the fixture can operate during full daylight, the fixture package must provide a range of settings that will result in the fixture complying with the specification.
Warranty	Repair or replacement of defective parts of the fixture housing and electronics (excluding the lamp) for 2 years from the date of purchase. Written warranty must be included with fixture when purchased.
Safety	Fixtures must be compliant with NFPA 70, the National Electrical Code (NEC), including requirements for wet locations (Articles 410-4a and Article 100).
Table 2A Special Application - Outdoor Fixtures: With A Controlled Circuit	
Shut-off	Automatic shut-off during daylight hours via controlled circuit. For fixtures sold without individual photocells, the package must include the following language next to the ENERGY STAR label: "This product is ENERGY STAR qualified only when installed on a photocell controlled circuit."

Table 2B - Outdoor Fixtures: Compliance Through Reduced Operating Time

Performance Characteristic	ENERGY STAR Specification
Maximum Input Power	250 watts
Controls	
Time of Day	Fixture must contain an integrated daylight threshold sensor that automatically prevents operation during daylight hours. The sensor must automatically reset to sensing mode within 24 hours of a manual override or testing operation. If the daylight threshold sensor can be adjusted such that the fixture can operate during full daylight, the fixture package must provide a range of settings that will result in the fixture complying with the specification.
Motion	Fixture also must contain an integrated motion sensor. The sensor must allow automatic shut-off of the lamp within 15 minutes of being manually activated by a switch or automatically activated by the sensor. The sensor must automatically reset to sensing mode within 24 hours of a manual override or testing operation. If the integrated motion sensor can be adjusted such that shut-off will not occur within 15 minutes, the fixture package must provide a range of settings that will result in the fixture complying with the specification.
Warranty	Repair or replacement of defective parts of the fixture housing and electronics (excluding the lamp) for 2 years from the date of purchase. Written warranty must be included with fixture when purchased.
Safety	Fixtures must be compliant with NFPA 70, the National Electrical Code (NEC), including requirements for wet locations (Articles 410-4a and Article 100).

4) Qualification Process, Acceptable Testing Facilities, Testing Standards & Required Documentation:
The following section describes the steps required to qualify residential light fixtures as ENERGY STAR, provides information about acceptable testing facilities, and states the testing standards and documentation required for each performance characteristic.

Steps for Partners to Qualify Residential Light Fixtures for ENERGY STAR:
To qualify a residential lighting fixture as ENERGY STAR, it must be tested according to the protocol outlined below. **Note that EPA reserves the right to require additional documentation, at any time, in order to determine compliance with all performance characteristics**.

A. Partner must obtain required testing and documentation to meet the performance characteristics listed in Section 3. Refer to Table 3, below, to determine the reference standard and required documentation applicable to each performance characteristic.

The following stipulations apply:

- For performance characteristics that require testing, the minimum required sample size is 3 units for each lamp/ballast combination.
- For multiple fixture models that use the same lamp/ballast combination, only one set of test results is required. For example, two fixtures that use the same lamp and ballast combination, but have different trim, lens and/or chasse need only be tested once.

- For fixture models that may use different ballasts (either in terms of the type of ballast or manufacturer), each lamp/ballast combination must undergo testing and the test results must be submitted for qualification. For example, if a residential light fixture partner plans to use ballasts from several manufacturers in any one fixture, the fixture must be tested with each manufacturer's ballast.

- For fixture models with one ballast type that can work with multiple lamp types, the fixtures need only be tested with one lamp type. The lamp type must either be the one supplied with the fixture at shipment or, if a lamp is not supplied, one of the lamp types listed on the packaging. Please note that ENERGY STAR expects all lamps listed on the packaging to comply with the specification when operating on the fixture's ballast. To ease the burden on the manufacturer, however, test data need be submitted for only one lamp type operating on the fixture's ballast.

B. Submit a signed and completed copy of the ENERGY STAR Residential Light Fixture Qualified Product Information (QPI) form along with required documentation. To obtain the current version of the form, visit the "Lighting" section of the ENERGY STAR Web site at www.energystar.gov/library, under "ENERGY STAR for Products."

Explanation of Acceptable Testing Facilities:

- To ensure quality product in the marketplace, ENERGY STAR requires test data from a laboratory accredited by one of the following: NVLAP, a laboratory accredited through one of NVLAP's MRA signatory partners (ILAC, APLEC, NACLA), or, when appropriate, from an OSHA NRTL or a laboratory accredited by an OSHA NRTL (see Table 3 for specific requirements).

  Please note that the required laboratory data for lumen output, CRI, CCT, and lamp life must come from a NVLAP accredited laboratory whose scope of accreditation includes the specific reference standards that are listed in Table 3 of this specification. Partner should obtain from the laboratory both its certificate of accreditation and its scope of accreditation and submit them to ENERGY STAR. Documentation for safety requirements must come from an OSHA NRTL. All other documentation may come from one of the accredited laboratories mentioned in the previous paragraph.

- Use the information below to locate an acceptable testing facility:
  - For a list of NVLAP accredited laboratories, visit the NVLAP Web site at http://www.nist.gov/nvlap or call (301) 975-4016.
  - For a list of signatories to the ILAC MRA, visit the ILAC Web site at www.ilac.org.
  - For a list of signatories to the APLAC MRA, visit the APLAC Web site at http://www.ianz.govt.nz/aplac/.
  - For a list of signatories to the NACLA MRA, visit the NACLA Web site at www.nacla.net.
  - For a list of accredited OSHA NRTL's, visit http://www.oshaslc.gov/dts/otpca/nrtl/index.html or call (202) 693-2110.

C. ENERGY STAR partners (fixture manufacturers) may obtain test data through any of the applicable following sources:

- From a public or private laboratory accredited by NVLAP or one of its MRA signatories or a public or private laboratory accredited by an OSHA NRTL. Partner should supply laboratory test reports with a completed QPI form.
- From the original equipment manufacturer. Partners should supply laboratory test reports or an ENERGY STAR Platform Letter of Qualification with a completed QPI form. The

ENERGY STAR Platform Letters of Qualification are given to manufacturers who pre-qualified certain performance requirements for their lamp and/or ballast.

- From an industry association. Partners should supply laboratory test reports or a letter issued by ENERGY STAR to said industry association that acknowledges the association's data sources. ENERGY STAR issues such letters to industry associations who take responsibility for certain performance requirements of lamp/ballast combinations.

Table 3 – Reference Standards and Required Documentation

Performance Characteristic (refer to Table 1, 2A or 2B as appropriate)	**Methods of Measurement Reference Standards**	**Required Documentation** (to be attached to Qualified Product Information Form)
System Efficacy: Light Output Input Power	IESNA LM-9; LM-66 IESNA LM-9; LM-66; ANSI C82.2	Laboratory test results must come from the generic lamp and specific ballast combination that will operate in the fixture. Provide a test report from a laboratory: 1. accredited by NVLAP; or 2. supply an EPA approved Platform Letter of Qualification that lists the lamp/ballast combination used in the fixture and the test result for this performance characteristic. Note: The laboratory used for this test must be accredited by NVLAP *and* have a scope of accreditation that includes the method of measurement reference standard for this performance characteristic.
Lamp Start Time	ANSI C82.11-5.2	Laboratory test results must come from the lamp and ballast combination that is shipped with the fixture. Provide a test report from: 1. a laboratory accredited by NVLAP; or 2. a laboratory accredited by one of its MRA signatories; or 3. a laboratory accredited by an OSHA NRTL; or 4. supply an EPA approved Platform Letter of Qualification that lists the lamp/ballast combination used in the fixture and the test result for this performance characteristic.

Lamp Life	IESNA LM-40; LM-65	Laboratory test results are not required for ENERGY STAR qualification. However, a test report from a laboratory accredited by NVLAP must be submitted upon EPA request. Note: The laboratory used for this test must be accredited by NVLAP *and* have a scope of accreditation that includes the method of measurement reference standard for this performance characteristic.
Color Rendering Index	IESNA LM-58; CIE 13.3	Laboratory tests must be completed on a lamp intended for use in the fixture. Provide a test report from a laboratory: 1. accredited by NVLAP; or 2. supply an EPA approved Platform Letter of Qualification that lists the lamp/ballast combination used in the fixture and the test result for this performance characteristic. Note: The laboratory used for this test must be accredited by NVLAP *and* have a scope of accreditation that includes the method of measurement reference standard for this performance characteristic.
Correlated Color Temperature	IESNA LM-58; LM-16	Laboratory tests must be completed on a lamp intended for use in the fixture. Provide a test report from a laboratory: 1. accredited by NVLAP; or 2. supply an EPA approved Platform Letter of Qualification that lists the lamp/ballast combination used in the fixture and the test result for this performance characteristic. Note: The laboratory used for this test must be accredited by NVLAP *and* have a scope of accreditation that includes the method of measurement reference standard for this performance characteristic.

Noise	Class A sound rating for ballast. Not to exceed a measured level of 24dBA (audible) when measured with a sound meter (similar in performance to B&K type 2209) where the microphone is located 12 inches from the fixture in any direction in a room with ambient noise no greater than 20 dBA.	Supply manufacturer or lab data. Note: A laboratory test report must be submitted upon EPA request.
Fixture Warranty	No Standard Available (Use manufacturer protocol)	Provide a two-year fixture manufacturer written warranty in product submittal and product packaging.
Dimming	No Standard Available (Use manufacturer protocol)	No laboratory report is required to be attached to the QPI form. However, a laboratory test report must be submitted upon EPA request.
Durability	Currently Under Development	No requirements at this time.
Safety – Portable Fixtures	ANSI/UL 153	Provide the cover page of a safety test report or a general coverage statement from an OSHA NRTL.
Safety – Hardwired Fixtures	UL 1598	Provide the cover page of a safety test report or a general coverage statement from an OSHA NRTL.
Safety – Ballasts and "Non-Edison based Fluorescent Adapters"	ANSI/UL 935 or UL 1993	Provide the cover page of a safety test report or a general coverage statement from an OSHA NRTL.
Power Factor	ANSI C82.11-3.3.1	Supply manufacturer or lab data. Note: A laboratory test report must be submitted upon EPA request.

Lamp Current Crest Factor	ANSI C82.11-3.3.3 and 5.6 ANSI C82.1-5.6.1	Laboratory testing must be completed using the ballast that is shipped with the fixture. Provide a test report from: 1. a laboratory accredited by NVLAP; or 2. a laboratory accredited by one of its MRA signatories; or, 3. a laboratory accredited by an OSHA NRTL; or 4. supply an EPA approved Platform Letter of Qualification that lists the lamp/ballast combination used in the fixture and the test result for this performance characteristic.
Maximum Case Temperature	UL 1598, Section 11	Supply manufacturer or lab data. Note: A laboratory test report must be submitted upon EPA request.
Electromagnetic and Radio Frequency Interference	Consumer Limits Per FCC 47 CFR Part 18.305 and 18.307	No lab report is required to be attached to QPI form. Note: A laboratory test report must be submitted upon EPA request. Not required for magnetically ballasted fixtures.
Ballast Frequency	Oscilloscope instruction manual	Supply manufacturer or lab data. Note: A laboratory test report must be submitted upon EPA request. Not required for magnetically ballasted fixtures.
Transient Protection	ANSI C82.11b, paragraph 5.10.1	Supply manufacturer or lab data. Note: A laboratory test report must be submitted upon EPA request. Not required for magnetically ballasted fixtures.
End of Life Protection	ANSI C78.81-12.6 and C78.901-13.8	Required for all T5 and smaller lamps with high frequency electronic ballasts. Attach, from the manufacturer or a laboratory, an engineering description outlining the scheme that is used to achieve the end of life function within the ballast. Not required for magnetically ballasted fixtures.

5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the effective date of the agreement. The ENERGY STAR for Residential Light Fixtures specification (Version 3.1) is **effective on April 1, 2002**, and replaces all previous versions when signed. Manufacturer agrees to submit information on all products qualifying under the above ENERGY STAR specification (Version 3.1) no later than six months after signing the Partnership Agreement. Products qualified under the previous ENERGY STAR specification (Version 3.0) will remain listed on the Web site, as there are no new requirements in Version 3.1 that would void Version 3.0 ENERGY STAR qualification. **However, products meeting the Version 2.1 ENERGY STAR specification must be re-submitted in order to remain qualified.**

   Phase-out of Linear Magnetic Ballasts: **Linear fluorescent fixtures with a magnetic ballast and lamps greater than 24 inches in length and over 30 listed lamp watts, will no longer qualify for ENERGY STAR after January 31, 2003**. As of February 1, 2003, all linear fluorescent fixtures must use an electronic ballast to qualify for ENERGY STAR.

6) Future Specification Revisions: ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification will be arrived at through industry discussions.

   Phase-out of Magnetic Ballasts: It is EPA's intent that future ENERGY STAR Residential Light Fixture technical specifications require ALL fluorescent fixtures to use electronic ballasts.

   Potential Revisions for Durability Testing: The intent is to develop a technical specification for durability testing of ENERGY STAR qualified residential light fixtures. Discussion and research are underway with results and decisions still to be determined. This discussion has no bearing on the implementation of this specification.